

IN THE CLAIMS:

The status of the claims is as follows:

1. (Original) A solid state device comprising:
a first material;
a second material;
a barrier layer formed between the first material and the second material to prevent diffusion between the first material and the second material, the barrier layer includes a metal form of at least one of Ru and Re.
2. (Original) The device as recited in claim 1, wherein the metal form includes a hexagonal close packed structure.
3. (Original) The device as recited in claim 1, wherein the first material is a dielectric and the second material is a metal.
4. (Original) The device as recited in claim 1, wherein the first material is a conductor and the second material is a metal.
5. (Original) The device as recited in claim 1, wherein the first material includes copper.
6. (Original) The device as recited in claim 1, wherein the metal form includes a single

metallic phase in a temperature range of between about 300 degrees C and about 550 degrees C.

7. (Original) The device as recited in claim 1, wherein the metal form includes a single metallic phase in a temperature range of between about 300 degrees C and about 900 degrees C.

8. (Original) The device as recited in claim 1, wherein device is a semiconductor device and the first material includes a semiconductor material.

9. (Original) The device as recited in claim 1, wherein the barrier layer includes a thickness of 700 Angstroms or less.

10-20. (Cancelled)

21. (Original) A solid state device comprising:

a first material;

a second material;

a barrier layer formed between the first material and the second material to prevent diffusion between the first material and the second material, the barrier layer includes a metal form of Ru.

22. (Original) A solid state device comprising:

a first material;

a second material;

a barrier layer formed between the first material and the second material to prevent diffusion between the first material and the second material, the barrier layer includes a metal form of Re.

23. (New) A solid state device comprising:

a first material;

a second material;

a barrier layer formed between the first material and the second material to prevent diffusion between the first material and the second material, the barrier layer including a metal having a hexagonal close packed structure having a thickness of 700 Angstroms or less and formed of at least one of Ru and Re, wherein the metal form includes a single metallic phase formed in a temperature range of between about 300 degrees C and about 550 degrees C.

24. (New) The device as recited in claim 23, wherein the first material is a dielectric and the second material is a metal.

25. (New) The device as recited in claim 23, wherein the first material is a conductor and the second material is a metal.

26. (New) The device as recited in claim 23, wherein the first material includes copper.

27. (New) The device as recited in claim 23, wherein device is a semiconductor device and the first material includes a semiconductor material.